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# Adrenal Incidentaloma, What could it be?

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## Abstract

Adrenal lesions discovered during imaging and performed for unrelated reasons are referred to as incidentalomas. There is a vast number of adrenal incidentalomas.

When the use of ultrasound and CT scanners became more prevalent, the rate of incidentalomas diagnosed rise exponentially, thus turning its management a common clinical problem. This management involves the identification of lesions that are potentially malignant or harmful due to excessive hormonal secretion.

The priority aspect is to distinguish the subset of adrenal masses that are likely to have a clinical impact from the large portion that are not. These cases imply the distinction between benign or malignant lesions, and the functioning or non-functioning state of the lesions.

We describe a case of a 37-year-old man, presenting with right lumbar pain and fatigue. Abdominal Computed Tomography (CT) identified a lesion in the right adrenal gland with 98 mm × 94 mm × 53 mm and a lipomatous aspect.

The case was presented in a multidisciplinary meeting, and a laparoscopic right adrenalectomy was decided to be performed. Histological results revealed an adrenal myelolipoma.

Adrenal myelolipomas are rare and benign tumors composed by an admixture of adipose tissue and extra-medullary hematopoietic elements, which affect predominantly the adrenal gland.

In most cases, treatment is not necessary, however surgery has an important role for symptomatic cases and lesions that cannot be reliably distinguished. Treatment and management should be tailored to each patient.

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## Introduction

The adrenal glands are paired, retroperitoneal organs located superior and medial to the kidneys, at the level of the eleventh rib. The right adrenal gland has a pyramidal shape and lies in close proximity to the right hemidiaphragm, liver, and Inferior Vena Cava (IVC). The left adrenal gland is closely associated with the aorta, spleen, and tail of the pancreas. The adrenal cortex accounts for about 80% to 90% of the gland's volume and has a yellowish appearance due to its high lipid content [1].

Histologically, the cortex is divided into three zones- the zona glomerulosa, zona fasciculata and zona reticularis. These areas are responsible for the production of the mineralocorticoid hormone (aldosterone), glucocorticoids and adrenal androgens, respectively. The adrenal medulla is responsible for producing catecholamine hormones (epinephrine and norepinephrine, respectively) [1].

Incidentally discovered adrenal masses, also termed clinically inapparent adrenal masses or incidentalomas, are discovered through imaging performed for unrelated nonadrenal disease [2-5].

Their existence as a clinical entity is a byproduct of advanced medical imaging. Incidentalomas have been found in 2.1% of autopsies and in 1% to 4% of abdominal imaging studies. This prevalence increases to more than 4% in patients older than 60 years [2].

The current widespread use of cross-sectional abdominal imaging has created the clinical dilemma of how to manage these incidentalomas. The purpose is to identify those that are potentially malignant or harmful due to excessive hormonal secretion, and thus needing surgery. In such manner, unnecessary interventions are avoided and the risks and complications associated with these procedures are minimized [4,6-8].

In patients with a history of malignancy, metastatic disease is the most likely cause of adrenal

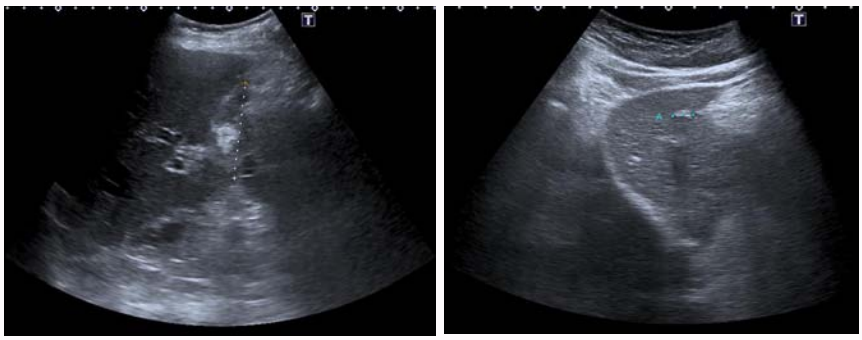

**Figure 1, 2:** Right adrenal gland mass was found in abdominal Ultrasonography (US).

masses, particularly when bilateral. In those without a clear history of malignancy, at least 80% of incidentalomas will turn out to be nonfunctioning cortical adenomas or other benign lesions, which do not require surgical management. Thus, in most patients, the most important aspect of management is to distinguish those with adrenal masses that are likely to have a clinical impact from the large proportion that are not [2,3,7,9]. The early identification of primary malignant adrenal lesions is important, with a major impact on the treatment and prognosis of these patients.

## Material and Methods

The authors describe a case of a 37-year-old man, presenting with right lumbar pain and fatigue. Blood tests didn't have any alterations, but on abdominal Ultrasonography (US), a right adrenal gland mass was found (Figure 1, 2). Next, an abdominal CT was performed, detecting a lesion in right adrenal gland with 98 mm × 94 mm × 53 mm and a lipomatous aspect (Figures 3-5).

After multidisciplinary decision, the patient was submitted electively to a laparoscopic right adrenalectomy. (Figure 6, 7) The postoperative period elapsed without complications and the patient was discharged 2 days post-surgery.

Anatomopathological results revealed an adrenal myelolipoma.

On follow-up, an improvement was verified in pain, and no postoperative complications were detected. The patient-maintained follow-up in general surgery consultation, without any alterations or new symptoms.

## Results and Discussion

The management of an adrenal myelolipoma should be decided upon the size of the lesion and the presence of symptoms [10-12].

Small lesions measuring less than 5 cm and those who are asymptomatic are usually monitored *via* imaging over a period of one to two years [10]. Large adrenal myelolipomas can cause symptoms of mass effect, and can occasionally be complicated by hemorrhage [13-15].

If imaging features are characteristic and the lesion is small, no treatment is required. If imaging findings are indeterminate, percutaneous biopsy can be performed [15-17]. In lesions where hemorrhage has occurred, surgical excision is curative [14,15].

There are several differential diagnoses to consider that include: retroperitoneal liposarcoma, fat-containing adrenocortical carcinoma, lipid-rich adrenal adenoma, adrenal teratoma, renal Angiomyolipoma (AML), adrenal angiomyolipoma, adrenal lipoma and extra adrenal myelolipoma [12,16].

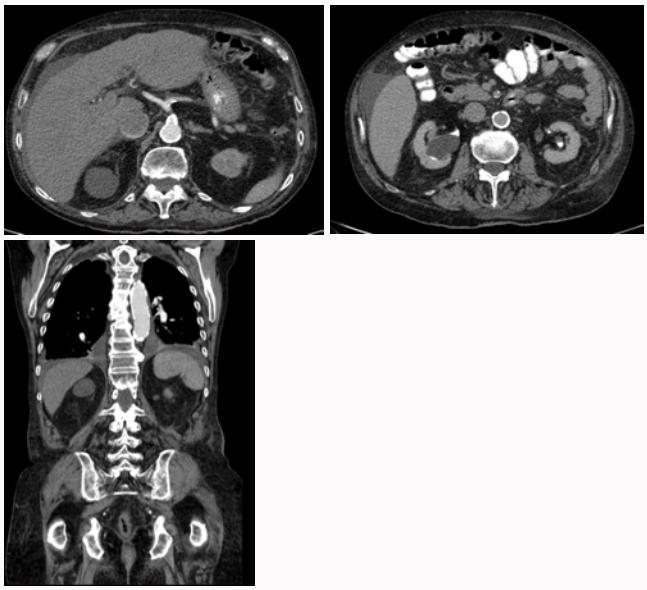

**Figure 3, 4, 5:** Right adrenal gland mass with 98 mm × 94 mm × 53 mm in CT scan.

According to literature, it is suggested that symptomatic tumors or myelolipomas larger than 6 cm should undergo elective surgical excision [11,18,19]. This approach is based on the reported incidence of life-threatening emergencies caused by spontaneous rupture and hemorrhage within large lesions [10,14].

Conventional or endoscopic access may be chosen according to the size of the tumor. Mini-invasive and endoscopic techniques are best utilized for smaller-sized lesions, depending on surgeon's expertise. Conventional methods, including transabdominal, lumbar, subcostal, or posterior access laparotomy operations, have been described in literature. An extraperitoneal approach is preferable as it leads to quicker recovery of the patient and lesser postoperative complications. The midline approach is indicated for masses larger than 10 cm or in cases where there are adhesions or infiltration of the surrounding structures [11]. However, the approach should ideally be in line with the surgeon's preference and experience.

Follow-up is mandatory regardless of the surgical method employed.

## Conclusion

Adrenal myelolipoma is a rare and benign tumor, with no

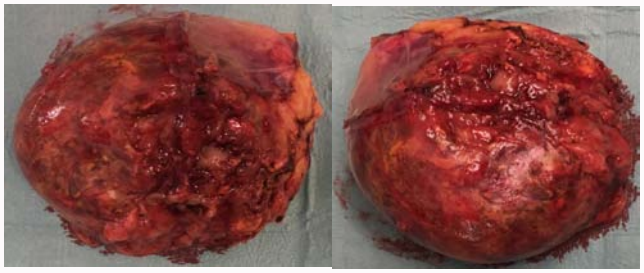

**Figure 6, 7:** Myelolipoma.

recognized malignant potential [19,20]. It occurs predominantly in the adrenal gland, has no endocrine function and is composed by an admixture of adipose tissue and extra-medullar hematopoietic elements [12,21]. Most of these tumors are small, asymptomatic and incidentally diagnosed. However, there are some cases of adrenal myelolipoma that cause symptoms such as chronic pain [14].

Surgery can prevent the occurrence of more severe symptoms or it's progression to a life-threatening state, such as spontaneous rupture, while also allowing an accurate diagnosis in patients with tumors larger than 6 cm [18].

Although benign, surgery on adrenal myelolipoma has an important role on symptomatic cases and lesions that cannot be reliably distinguished [14]. Treatment and management should be tailored to each patient [11].

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